

ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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JUN 17 1993

In the Matter of

Amendment of Part 22 of the
Commission's Rules Pertaining
to Power Limits for Paging
Stations Operating in the
931 MHz Band in the
Public Land Mobile Service

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CC Docket No. 93-116

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

TO: The Commission

COMMENTS
OF
PAGING NETWORK, INC.

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SUMMARY

PageNet enthusiastically supports the Commission's proposal to license stations in the 931 MHz band with up to 3500 watts power at any height. PageNet's experience in operating such stations demonstrates that service to subscribers is improved and carriers benefit from increased flexibility in system design and operation.

However, PageNet is deeply concerned that the proposed elimination of Section 22.505(b) and the table for determining power through linear interpolation at heights above 1000 feet will have a serious negative impact on paging operations and on licensees' ability to make minor modifications in many instances. PageNet therefore recommends that stations operating with facilities that exceed the maximums for their class, under Section 22.502(c), be grandfathered and that the height/power table in Section 22.505(b) be retained for use in making minor modifications to such facilities during the period of transition to the new rules.

PageNet supports the Commission's proposal, in effect, to license stations by class and strongly recommends that the agency adopt a formula for computing height and power within each class as a substitute for the stair-step mechanism contained in the station classification chart in Section 22.502(c). Further, PageNet recommends that "in-class" modifications be authorized on a permissive, non-notification basis.

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TO: The Commission

COMMENTS OF PAGING NETWORK, INC.

Paging Network, Inc., by its attorneys, and pursuant to Section 1.415 of the Commission's rules, 47 C.F.R. § 1.415, hereby submits its Comments in response to the Commission's Notice of Proposed Rulemaking ("Notice") issued in the captioned proceeding.

I. INTRODUCTION

A. Statement of Interest

PageNet is the largest and fastest growing paging carrier in the nation, providing both radio common carrier ("RCC") and private carrier paging ("PCP") services to over 2.5 million subscribers in 28 states and the District of Columbia. As the licensee of nearly two thousand transmitters from coast to coast, PageNet is vitally concerned with rules, such as those proposed

here, which directly affect the licensing, construction, modification and operation of those facilities.

B. Summary of the Notice and PageNet's Position

The Commission initiated this proceeding to seek comment on proposed amendments to Part 22 of its rules governing common carrier paging services in the 931 MHz band. See 47 C.F.R. § 22.1

modifying existing systems. PageNet, therefore, recommends that the Commission provide for the grandfathering of certain existing facilities and that it retain certain mechanisms which currently exist in the rules to permit modification of base station facilities without triggering debilitating power reductions. PageNet also strongly recommends that the Commission adopt a formula for computing height and power as a substitute for the station classification chart in Section 22.502(c). PageNet further recommends that licensees be permitted to make modifications on a permissive, non-notification basis where the class of the station is not changed, provided that the overall height of the antenna structure is not increased. In addition, PageNet recommends that changes affecting the classification of perimeter stations be deemed "major" so that they may be placed on public notice and entered in the Commission's database pursuant to the filing of a Form 401.

II. DISCUSSION

A. Allowing All Paging Facilities to Operate With Up to 3500 Watts ERP Will Benefit the Public Interest.

The Commission is proposing to allow initial licensing and operation of all common carrier paging stations with up to 3500 watts power, assuring against co-channel interference through reliance on the mileage separation criteria set forth in Section 22.503(d). In effect, the Commission will cease its initial licensing of 931 MHz base stations with assumed 20-mile service and 50-mile interference contours, at heights and powers

determined in accordance with Section 22.505(b). Seventy-mile co-channel separation will likewise cease to be the standard requirement in the band. Instead, the Commission proposes to look to the station classification and mileage separation tables in Sections 22.502 and 22.503, respectively, in processing applications for new facilities. Stations will be licensed with greater or lesser coverage areas, depending on the operational needs of the carrier/applicant and the existence of adequate geographic distance from co-channel operations of other carriers.

PageNet favors the move toward across-the-board licensing of higher power stations for all of the reasons enumerated in the Notice.¹ As stated therein, the higher power operation will foster improved coverage and produce better building penetration. It will facilitate expansion of coverage areas with fewer transmitter sites, thus reducing carriers' infrastructure costs and ultimately the cost of service to the consumer. Over all, it will produce greater flexibility and efficiency in the provision of paging services.

PageNet has extensive experience operating numerous facilities with powers in excess of the height/power derate table

¹ Since elimination of Sections 22.505(c)(2) and 22.506(f)(2) is a direct corollary to a service-wide power increase, PageNet has no objection to the proposed deletion of those provisions.

in Section 22.505.² That experience confirms that the effects and advantages which the Commission cites do, in fact, redound to the benefit of both the licensee and the consumer.

As more fully discussed below, however, PageNet is deeply concerned with the ramifications of the Commission's proposal to do away with the height/power table in Section 22.505(b) and the linear interpolation which it permits, in favor of a total reliance on the stair-step classification table and related mileage separation requirements. Specifically, PageNet believes this will adversely affect licensees' ability to make minor modifications to existing stations, particularly facilities which operate at the margins of the height limits for each class of station.

B. Elimination of the Height/Power Table and Linear Interpolation Techniques for Determining Power Will Have a Serious Negative Impact on Paging Operations.

The Commission is proposing to eliminate Section 22.505(b) of the rules in favor of a licensing scheme based strictly on class and geographic separation, as discussed above.

² Pursuant to the Commission's decision in *PacTel Paging, Inc.*, 6 FCC Rcd 5054 (1991), PageNet currently operates "Class 1" stations with greater than 1000 watts at numerous locations where antenna height is 580 feet, or less. While the Notice appears to overlook the existence of such operations, stating that the greater power is possible only "where the transmitter involved is completely surrounded by other transmitters of the same licensee, which operate at 1000 watts," Notice at ¶ 5, operations of this type, pursuant to *PacTel*, have existed for nearly two years. PageNet also operates a number of "super powered" stations at "internal" sites surrounded by authorized co-channel facilities.

DemNet believes strongly that the proposed rules must be modified

watts under the derate table in Section 22.505(b).⁵ Once authorized, the new station would be nominally classified Class L, with an assumed 20-mile service area and 50-mile interference contour. However, under the classification table in Section 22.502(c), the facility rates as a Class G station, with service and interference contours of 35 and 81 miles, respectively, and a required co-channel separation requirement of at least 101 miles.⁶ The result is a "short-spaced super class" perimeter station. These stations exist in significant numbers, primarily in areas where the terrain offers points of high elevation from which paging and other radio operations are carried on.

Under the proposed rules, it appears that a licensee seeking to modify the hypothetical super class station in the above example would be required to reduce power to 125 watts -- the maximum allowed for a Class L station at 1500 feet HAAT. PageNet has studied the effects of reduced signal strength on the probability of receiving paging transmissions at varying signalling speeds. As shown in the chart attached as Appendix A, the 6.81 dB reduction in rf level that would result from a 600 to

⁵ In processing the application, the Commission would look to a distance of 70 miles for conflicting co-channel operations. We will assume, hypothetically, that it found the nearest co-channel Class L operation of another carrier to be located at a distance of 90 miles, well beyond the 70-mile coordination distance.

⁶ In fact, if the co-channel station located at 90 miles were likewise a "super class" Class G station, the required distance separation would be 116 miles.

125 watt power decrease could virtually destroy all probability of receiving a page at any given location. The rules adopted in this proceeding, therefore, must take into account the existence of super class stations and provide a means whereby they may be modified without destroying their viability.

1. Existing Super Class Stations Must Be Grandfathered.

PageNet believes that the Commission must adopt in this proceeding a provision grandfathering all stations authorized prior to the effective date of the new rules. In addition, the rule must provide for the reclassification of such stations in accordance with their actual facilities, and any resulting co-channel short-spacing must likewise be grandfathered. The 600 watt/1500 foot facility in the example above would thus be reclassified as a grandfathered, short-spaced Class G facility. Modification of such facilities must be provided for in the manner discussed below. In addition, in order to insure the accuracy of the Commission's data base and proper notice to other carriers of the reclassification of former super class stations, a Form 489 notification filing should be required, with such filings being made the subject of a special public notice and immediate entry into the database. The Commission may wish to establish a filing window for the submission of such reclassification notifications. In the alternative, licensees should be required to file Form 401 reflecting the reclassification.

**2. Section 22.505(b) Should Be Preserved for Use in
Modifying Super Class Stations and for Accommodating
Certain Changed Circumstances.**

The height/power table in Section 22.505(b) should be retained for use in modifying super class stations and in other situations where the exclusive application of the classification tables would seriously disadvantage licensees' paging operations. As just illustrated, many stations authorized under the rules in effect today could be practically precluded from making future modifications by the strict application of the stair-step classification tables in Section 22.502(c).

Similar problems can and do arise in the context of constructing authorized facilities in the current highly-radioed environment. Antenna sites are often congested; it is not unusual for a licensee to find in constructing an authorized station that the height specified in the initial Form 401 application is no longer available on the proposed tower structure. As a result, the antenna must often be relocated somewhat higher or lower on the tower. Historically, this situation has been accommodated at the Form 489 covering notification stage by the filing of a supplemental Schedule B (Form 401) to reflect the necessary minor change -- power being increased or decreased through linear interpolation pursuant to Section 22.505(b) in a manner appropriate to the change in antenna height. Under the proposed rules, a so-called "minor" change in antenna height, due to reasons beyond the control of the licensee, could result in very significant stair-step reclassification of the station, especially where the proposed height is at the margin of the maximum

permitted by the classification table. Moreover, with the proposed elimination of Section 22.505(b), it would no longer be possible to compute an appropriate height/power equivalent to the station's authorized facilities.

Therefore, in order to assure the feasibility of making modifications where it is necessary and appropriate to compute equivalent powers and heights, PageNet strongly recommends retention of the height/power derate table, with linear interpolation between heights, for use in the following situations:

- ° In modifying short-spaced super class stations where it is necessary to provide equivalent protection to the short-spaced co-channel facility; and
- ° In accommodating minor changes due to unforeseen changed circumstances in the process of constructing authorized facilities.

In the case of grandfathered super class stations that have been reclassified pursuant to Section 22.502(c) and that remain fully spaced to all co-channel operations, minor modifications should be permitted up to the maximum facilities for the new class. In the hypothetical example described above, this would permit modifications that would not exceed maximum Class G facilities, based on the service and interference contours set forth in Section 22.504. Modifications that would exceed those maximums should require the filing of a Form 401 and prior Commission approval.

The significant power reductions that would be required in many instances if the rules proposed by the Commission were adopted would force carriers to redesign their systems and to

construct additional transmitter sites. This result conflicts directly with the Commission's objectives in initiating the instant proceeding. Adoption of the additional provisions which PageNet recommends will further the Commission's ultimate objectives in fostering flexibility in system design and efficient spectrum utilization.

C. The Table in Section 22.502(c) Should Be Eliminated and Replaced by a Formula for Computing Permissible Height and Power for Each Class of Station.

While PageNet urges the Commission at a minimum to preserve the height/power derate table and linear interpolation for purposes of modifying existing stations during the period of transition to the new rules, its ultimate desire is that the Commission adopt the more global changes which PageNet recommended in its comments in the Part 22 Rewrite Proceeding.⁷

In its Rewrite Comments, PageNet recommended adoption of a formula for use in computing power, rather than using either

⁷ See, Comments of Paging Network, Inc. in CC Docket 92-115, In the Matter of Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services, 7 FCC Rcd. 3658 (1992) (Rewrite NPRM).

charts or tables.⁸ While the formula cited in the Rewrite Comments -- $d(\text{km}) = 1.36 \times \text{height/meters}^{0.335} \times \text{power/watts}^{0.175}$ -- was designed to replace the height/power table in Section 22.505(b), it could easily be revised to comport with the somewhat more conservative power limits reflected in Section 22.502. In any event, PageNet is firmly convinced that the use of such a formula is the most efficient and appropriate way to determine power and recommends that the Commission adopt such an approach as an alternative to the classification chart in Section 22.502(c). Specifically, this would produce a smooth transition to the scheme of licensing by class which the Commission now proposes.

Using the formula and licensing stations by class, based on compliance with the mileage separations in Section 22.504 and with the maximum service and interference contours in Section 22.503, would avoid the abrupt and arbitrary cut-offs created by the stair-steps in the classification table. Increases in station class would require a Form 401 application and a further demonstration of compliance with the mileage limitations for the higher class. Minor changes within a class could be easily accommodated, without risk of major power reductions due to minor

⁸ Comments of Paging Network, Inc. at 25. In those Comments, PageNet proposed that all 931 MHz paging transmitters be licensed with maximum power of 3500 watts, at any height, just as the Commission is now proposing. While PageNet also proposed that applicants be required to undertake prior coordination and demonstrate that no co-channel interference would result from such operations, using the self-certification process proposed in the Rewrite NPRM, it supports with equal vigor the Commission's current proposal which contemplates licensing based on maximum class contours and distance separations.

increases in height. Fewer situations would arise requiring special attention, and fewer requests for waiver to accommodate inequities produced by the arbitrariness of the classification table. In the end, the resources of the Commission and its licensees would be preserved and the public interest substantially advanced.

D. The Commission Should Authorize "In-Class" Modifications on a Permissive, Non-Notification Basis.

The adoption of rules to license paging transmitters at increased power will to a degree reduce the burden on licensees to file applications and on the Commission to process them, as fewer transmitters, and therefore fewer transmitter licensing applications, will be necessary. Significant further reductions in the burden on licensees and the agency would result from the adoption of provisions creating a class of permissive station modifications which do not require even the filing of a Form 489 notification and to include in such class of modifications those which do not change the station class. Therefore, with the proviso that the antenna support structure must not be increased so that FAA coordination and tower clearances are not brought into play, PageNet further recommends that "in-class" station modifications be authorized on a permissive basis, without notification to the FCC.

Once stations are licensed by class pursuant to Section 22.502 and 22.503, as proposed by the Commission in the Notice, there can be no adverse impact on other licensees resulting from

modifications of facilities that do not change the station class.⁹ Nor can PageNet foresee any circumstance where the Commission or another licensee would need to know the precise nature of the antenna system as initially licensed or as subsequently modified. Indeed, licenses could reflect simply the station class and assigned maximum service and interference contours.¹⁰ Modifications which would change neither the class nor cause the contours to be exceeded should be permissible without further notification to the Commission. PageNet strongly recommends that the Commission adopt rules to that effect. Permitting "in-class" modifications without notice to the Commission as proposed herein would significantly reduce the Commission's work load, and would further reduce costs to the carrier and ultimately the cost of service to the public. The public would thus be well served and the Commission's objectives in this proceeding advanced.

E. Changes of Facilities at Perimeter Stations Must Be Entered in the Commission's Database and Made Available to the Public.

PageNet further proposes that any reduction in class or change to the perimeter contours -- service or interference -- of

⁹ The maximum authorized power for a Class K station under Section 22.502(c) is 1860 watts. Stations in Class H, G and F are each authorized maximums of 3500 watts.

¹⁰ PageNet supports the Commission's tentative decision to retain the reliable service area and interference area parameters in Section 22.504(b)(2). Notice at fn. 5. As discussed in the previous section, licensing on the basis of such service and interference contours would prove to be a highly efficient means of establishing maximum facilities for each class of station.

a station be deemed a "major modification" requiring the filing of a Form 401. The resulting public notice and updating of the Commission's database would make it possible for those seeking co-channel authority to insure their compliance with distance separation requirements under Section 22.503 and to complete and prosecute a valid application.¹¹

III. CONCLUSION

PageNet supports the Commission's proposal to allow 3500 watt operation of all stations in the 931 MHz band without requiring existing surrounding co-channel transmitters. However, it strongly urges the Commission to provide for a smooth transition to the new rules by grandfathering stations with licensed parameters in excess of those permitted under the new rules, by retaining appropriate mechanisms permitting minor modification of such stations, and most importantly by adopting a formula for computing height and power as a replacement for the classification table in Section 22.502(c). In addition, PageNet urges the adoption of rules that will enhance the efficient use of the 931 MHz band through streamlined procedures for making in-

¹¹ While PageNet recommends that a Form 401 be filed in these situations, it maintains that such applications would be subject to the conditional licensing provisions of Section 22.43(d).

class station modifications. PageNet supports adoption of the Commission's proposal to license 931 MHz paging stations at higher powers, including the modifications recommended by PageNet.

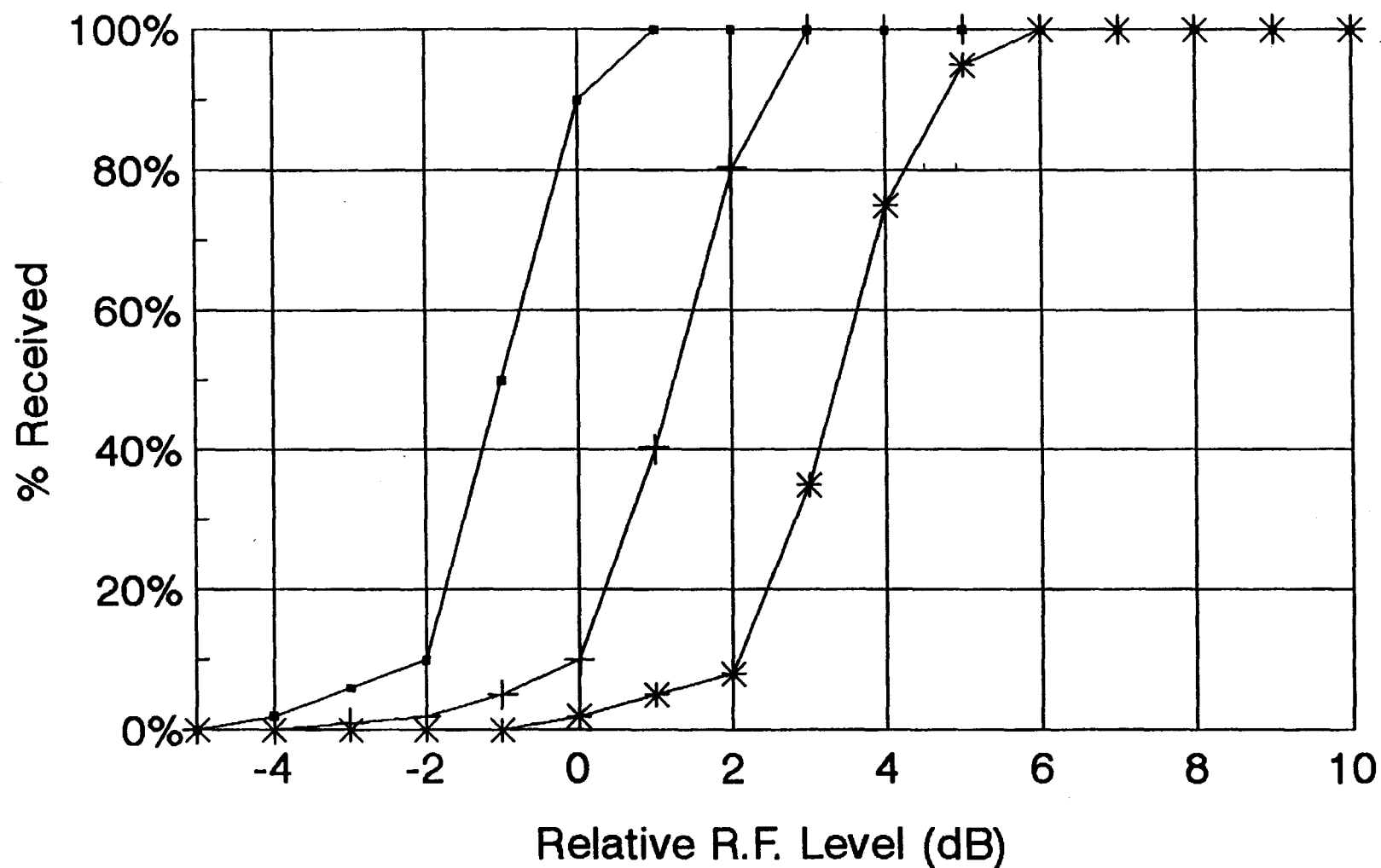
Respectfully submitted,

PAGING NETWORK, INC.

Wm. S. L.

Paging Probability vs. Coding Speed

Note: Typical Paging Sensitivity - 40 Character Alpha



PAGENET

—■— 512 Baud —+— 1200 Baud —*— 2400 Baud